

Applicant: P. Bonutti
Application No.: 10/755,995
Examiner: D. Reip

In the Claims

1. (Original) An implantable device for changing the spatial relationship between first and second bones, the device comprising a body configured and dimensioned for insertion into a joint located between the first and second bones and having a compartment containing a bone growth inducing material, wherein the bone growth inducing material includes a bone morphogenic protein.
2. (Original) The device of claim 1 wherein the bone growth inducing material includes demineralized bone.
3. (Original) The device of claim 2 wherein the demineralized bone is a powder.
4. (Original) The device of claim 1 wherein the bone growth inducing material includes collagen.
5. (Original) The device of claim 4 wherein the collagen is in the form of apatite compositions with collagen.
6. (Original) The device of claim 4 wherein the bone growth inducing material includes demineralized bone.
7. (Original) The device of claim 6 wherein the demineralized bone is a powder.
8. (Original) The device of claim 4 wherein the body is made of a porous material.
9. (Original) The device of claim 8 wherein the porous material includes cavities with at least some of the cavities containing a bone growth promoting material.

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10. (Original) The device of claim 1 further including fastener means for fixedly connecting the body to at least one of the first and second bones.

11. (Original) The device of claim 10 wherein the fastener means includes at least one screw.

12. (Original) The device of claim 10 wherein the fastener means includes a first connector configured and dimensioned to connect the body to the first bone and a second connector configured and dimensioned to connect the body to the second bone.

13. (Original) A spinal implant for insertion in a joint located between first and second vertebrae, the implant comprising a wedge member configured and dimensioned for insertion into the joint and having a compartment containing a bone growth inducing material, wherein the bone growth inducing material includes a bone morphogenic protein.

14. (Original) The implant of claim 13 wherein the bone growth inducing material includes demineralized bone.

15. (Original) The implant of claim 14 wherein the demineralized bone is a powder.

16. (Original) The implant of claim 13 wherein the bone growth inducing material includes collagen.

17. (Original) The implant of claim 16 wherein the collagen is in the form of apatite compositions with collagen.

18. (Original) The implant of claim 16 wherein the bone growth inducing material includes demineralized bone.

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19. (Original) The implant of claim 18 wherein the demineralized bone is a powder.
20. (Original) The implant of claim 16 wherein the wedge member is made of a porous material.
21. (Original) The implant of claim 20 wherein the porous material includes cavities with at least some of the cavities containing a bone growth promoting material.
22. (Original) The implant of claim 13 further including fastener means for fixedly connecting the body to at least one of the first and second vertebrae.
23. (Original) The implant of claim 22 wherein the fastener means includes at least one screw.
24. (Original) The implant of claim 22 wherein the fastener means includes a first connector configured and dimensioned to connect the wedge member to the first vertebra and a second connector configured and dimensioned to connect the wedge member to the second vertebra.
25. (Original) The implant of claim 13 wherein the wedge member tapers from a trailing end portion to a leading end portion.
26. (Original) The implant of claim 25 wherein the wedge member is made of a biocompatible metallic material.
27. (Original) The implant of claim 25 wherein the wedge member is made of a polymeric material.
28. (Original) The implant of claim 25 wherein the wedge member is made of a biodegradable material.

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29. (Original) The implant of claim 25 wherein the wedge member has a pair of arcuate side surfaces.

30. (Original) The implant of claim 13 wherein a bone growth promoting material is disposed on the wedge member.

31. (Original) A method of changing the spatial relationship between first and second bones, the method comprising:

- providing an implantable device including an internal compartment;
- placing a bone growth inducing material into the internal compartment, the bone growth inducing material including a bone morphogenic protein; and
- inserting the implantable device into a joint located between the first and second bones.

32. (Original) The method of claim 31 further comprising connecting the implantable device to at least one of the first and second bones.

33. (Original) The method of claim 31 wherein inserting the implantable device into the joint located between the first and second bones comprises:

- positioning an end portion of the implantable device in the joint located between the first and second bones; and
- expanding at least a portion of the joint by moving the implantable device into the joint to apply a force against the first and second bones with the implantable device such that the spatial relationship between a first central longitudinal axis of the first bone and a second central longitudinal axis of the second bone changes as the implantable device is moved into the joint.

34. (Original) The method of claim 31 wherein the bone growth inducing material includes demineralized bone.

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35. (Original) The method of claim 34 wherein the demineralized bone is a powder.

36. (Original) The method of claim 34 wherein the bone growth inducing material includes collagen.

37. (Original) The method of claim 36 wherein the collagen is in the form of apatite compositions with collagen.

38. (Original) The method of claim 36 wherein the implantable device is made of a porous material.

39. (Original) The method of claim 38 wherein the porous material includes cavities with at least some of the cavities containing a bone growth promoting material.

40. (Original) The method of claim 31 wherein the implantable device comprises a first end portion having a first thickness and a second end portion opposite the first end portion and having a second thickness less than the first thickness.

41. (Original) The method of claim 40 wherein inserting the implantable device into the joint located between the first and second bones comprises:

positioning the second end portion of the implantable device in the joint located between the first and second bones; and

expanding at least a portion of the joint located between the first and second bones by moving the implantable device into the joint to apply a force against the first and second bones with the implantable device, such that the spatial relationship between a first central longitudinal axis of the first bone and a second central longitudinal axis of the second bone changes as the implantable device is moved into the joint.

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41. (Original) The method of claim 31 wherein the first and second bones are first and second vertebrae.